

WHAT IS CLAIMED IS:

1. An optical scanning apparatus comprising:  
a laser unit in which a light source and  
collimator lens are integrated;

5 an incident optical system for making a light beam  
emerging from said laser unit strike an optical  
deflector while keeping the light beam wider than a  
width of a deflecting surface of the optical deflector  
in a main scanning direction; and

10 an imaging optical system for forming the light  
beam reflected/deflected by the optical deflector into  
an image on a scanned surface,

wherein said laser unit is adapted to be shifted  
by shift adjusting means in a predetermined direction  
15 with respect to the optical axis of said incident  
optical system so as to make an illuminance  
distribution of scanning lines on the scanned surface  
become substantially symmetrical about a scanning  
central axis.

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2. An apparatus according to claim 1, wherein the  
"substantially symmetrical" indicates that an  
illuminance distribution on the scanned surface falls  
within  $\pm 5\%$  with respect to the axis in an effective  
25 scanning range.

3. An apparatus according to claim 1, wherein the

predetermined direction is the main scanning direction or/and a sub-scanning direction.

4. An apparatus according to claim 1, wherein the  
5 light beam emerging from said laser unit is a substantially parallel light beam.

5. An apparatus according to claim 1, wherein  
10 when the optical axes of said incident optical system and imaging optical system are projected on a main scanning cross-section, the optical axes substantially coincide with each other.

6. An apparatus according to claim 5, wherein the  
15 light beam emerging from said incident optical system is obliquely incident on the deflecting surface of the optical deflector in a sub-scanning cross-section.

7. An apparatus according to claim 1, wherein the  
20 light beam emerging from said incident optical system is obliquely incident on the deflecting surface of the optical deflector in a main scanning cross-section.

8. An apparatus according to claim 7, wherein  
25 said incident optical system is arranged in a main scanning cross-section based on the optical deflector.

9. An apparatus according to claim 1, wherein  
said incident optical system comprises a stop  
plate, and

5 said laser unit is shifted by said shift adjusting  
means in a predetermined direction with respect to the  
optical axis of said incident optical system such that  
a ratio of intensities of two light beams obtained by  
splitting a light beam passing through said stop plate  
in two in the main scanning direction at a stop center  
10 becomes not more than 10%.

10. An apparatus according to claim 1, wherein a  
tilt angle of the light source in the main scanning  
direction is set to not more than  $\pm 2.5^\circ$  with respect to  
15 the optical axis of the collimator lens.

11. An apparatus according to claim 7, wherein  
said laser unit is shifted in advance in the main  
scanning direction with respect to the optical axis of  
20 said incident optical system by an amount corresponding  
to an incidence angle at which the light beam emerging  
from said incident optical system is obliquely incident  
on the deflecting surface of the optical deflector in a  
main scanning cross-section.

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12. An image forming apparatus comprising:  
said optical scanning apparatus defined in any one

of claims 1 to 11;

a photosensitive member placed on the scanned surface;

5 a developing unit for developing an electrostatic latent image formed on said photosensitive member by a light beam scanned by said optical scanning apparatus into a toner image;

a transfer unit for transferring the developed toner image onto a transfer medium; and

10 a fixing unit for fixing the transferred toner image on the transfer medium.

13. An image forming apparatus comprising:

15 said optical scanning apparatus defined in any one of claims 1 to 11; and

a controller for converting code data input from an external device into an image signal, and inputting the signal to said optical scanning apparatus.

20 14. A method of manufacturing an optical scanning apparatus including a laser unit in which a light source and collimator lens are integrated, an incident optical system for making a light beam emerging from the laser unit strike an optical deflector while  
25 keeping the light beam wider than a width of a deflecting surface of the optical deflector in a main scanning direction, and an imaging optical system for

forming the light beam reflected/deflected by the  
optical deflector into an image on a scanned surface,  
comprising the step of

causing shift adjusting means to shift the laser  
5 unit in a predetermined direction with respect to the  
optical axis of the incident optical system so as to  
make an illuminance distribution of scanning lines on  
the scanned surface become substantially symmetrical  
about a scanning central axis.

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15. A method according to claim 14, wherein the  
predetermined direction is the main scanning direction  
or/and a sub-scanning direction.

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16. A method of manufacturing an image forming  
apparatus by forming the optical scanning apparatus  
manufactured by the method defined in claim 14, and a  
controller for converting code data input from an  
external device into an image signal and inputting the  
20 signal to the optical scanning apparatus.